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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,058	09/28/2001	Sarah Kate Wilson	15685P120	4908

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EXAMINER

VU, THAI

ART UNIT PAPER NUMBER

2687

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/967,058

Applicant(s)

WILSON ET AL.

Examiner

Thai N. Vu

Art Unit

2687

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-16, 20-27 and 30 is/are rejected.
- 7) ☒ Claim(s) 7-9, 17-19, and 28-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Boscovic et al. (U.S. Patent #: 6,490,452; hereinafter Boscovic).

Regarding claim 1, Boscovic teaches a method comprising:

measuring one or more performance characteristics associated with each of at least a subset of a plurality of targets in a wireless communication system, each target a communication target with which to engage in two-way communication (column 5, lines 8-18 – received signal strengths are inherently measured before the mobile are grouped); and

selectively building one or more clusters, each cluster including one or more target(s) and which share common wireless communication channel(s), based at least in part on the performance characteristics (column 5, lines 8-18).

Regarding claim 2, Boscovic further teaches limitations of the claim in column 5, lines 8-14 (received signal strength measured).

Regarding claim 3, Boscovic further teaches limitations of the claim in column 5, lines 8-18.

Regarding claim 10, Boscovic further teaches limitations of the claim in FIG. 2.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boscovic in view of Yu (U.S. Patent #: 6,047,186, hereinafter Yu).

Regarding claim 4, Boscovic teaches all subject matter as claimed above except for the steps of the measuring the performance characteristics comprising:

initializing K sets of weights;

estimating the signal to interference and noise ratio (SINR) for each target for each of the K weights; and

selecting one of the K weights for each of the targets that maximizes each targets SINR, to produce K clusters of targets based, at least in part, on each target's SINR. However, Yu teaches such limitations in column 10, lines 7- 38 and column 15, lines 30-60.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the steps of

initializing K sets of weights;

estimating the signal to interference and noise ratio (SINR) for each target for each of the K weights; and

selecting one of the K weights for each of the targets that maximizes each targets SINR, to produce K clusters of targets based, at least in part, on each target's SINR, as taught by Yu in view of Boscovic, in order to facilitate frequency planning.

Regarding claim 5, Yu further teaches limitations of the claim in column 10, lines 7-38 and column 15, lines 30-60.

6. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Boscovic, in view of Yu as applied to claim 5 above, and further in view of Miya (U.S. Patent #: 6,684,086 hereinafter Miya).

Regarding claim 6, Boscovic and Yu teaches all subject matter as claimed above except for feature of the new weight being as a least-squares weight associated with the identified target. However, Miya teaches the limitations of the claim in column 7, lines 45-48.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the new weight being as a least-squares weight associated with the identified target, as taught by Miya, in view of Boscovic, and Yu, in order to facilitate communication using adaptive array antenna.

Regarding claim 11, Boscovic teaches a communication station comprising: wireless communication resources (FIG. 2, antenna 5 providing resources); and a communication agent, coupled with the wireless communication resources (FIG. 2 grouping module 7), to populate cluster(s) with one or more communication target(s) based, at least in part, on one or more estimated performance characteristics associated with the targets (column 5, lines 8-16)

It should be noticed that, Boscovic fails to teach the feature of developing a weighting value for at least a subset of the populated clusters. However, Yu teaches such limitations in column 10, lines 8-25.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of developing a weighting value for at least a subset of the populated clusters, as taught by Yu, in view of Boscovic in order to facilitate frequency planning.

It should be noticed that, Boscovic and Yu, in combination, fails to teach the feature of generating a transmission beam to target(s) within the cluster(s) based, at least in part, on the developed weighting value. However, Miya teaches such limitations in column 2, lines 53-63.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of generating a transmission beam to target(s) within the cluster(s) based, at least in part, on the developed weighting value, as taught by Miya in view of Boscovic and Yu in order to facilitate communication using adaptive array antenna.

Regarding claim 12, Boscovic further teaches limitations of the claim in FIG. 2 (transmitter system inherently included with the antenna 5).

Regarding claim 13, Boscovic further teaches a clustering engine (FIG. 2 grouping module 7), to measure one or more performance characteristics associated for each of at least a subset of a plurality of targets in a wireless communication system, and to selectively build one or more clusters, each cluster including one or more target(s) and sharing a wireless communication channel, based at least in part on the performance characteristics (column 5, lines 8-18).

Regarding claim 14, Yu further teaches limitation of the claim in column 10, lines 7- 38 and column 15, lines 30-60.

Regarding claim 15, Boscovic further teaches identifying a target within each of the cluster with a lowest SINR in column 5, lines 8-14, and

Yu further teaches dynamically generating a new set of weights based, at least in part, on the SINR of the identified target in column 10, lines 7- 38 and column 15, lines 30-60.

Regarding claim 16, Miya further teaches limitations of the claim in column 7, lines 45-48.

Regarding claim 20, Yu further teaches limitations of the claim in FIG. 11.

Regarding claim 21, Boscovic, teaches in a wireless communication system implementing general packet radio services (GPRS) (column 2, lines 53-56) a method comprising:

populating cluster(s) with one or more target(s) based, at least in part, on measured performance characteristics of each of the one or more target(s) (column 5, lines 8-18);

It should be noticed that, Boscovic fails to teach the feature of developing a weighting value for at least a subset of the populated clusters. However, Yu teaches such limitations in column 10, lines 8-25.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of developing a weighting value for at least a subset of the populated clusters, as taught by Yu, in view of Boscovic in order to facilitate frequency planning.

It should be further noticed that, Boscovic and Yu, in combination, fails to teach the feature of generating a transmission beam to target(s) within the cluster(s) based, at least in part, on the cluster spatial signature. However, Miya teaches such limitations in column 2, lines 53-63.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the feature of generating a transmission beam to target(s) within the cluster(s) based, at least in part, on the

developed weighting value, as taught by Miya in view of Boscovic and Yu in order to facilitate communication using adaptive array antenna.

Regarding claim 22, Miya further teaches limitations of the claim in column 3, lines 28-34 (transmission processing inherently includes modifying parameters).

Regarding claim 23, Miya further teaches limitations of the claim in column 1, lines 13-22.

Regarding claim 24, Boscovic, further teaches the steps of measuring one or more performance characteristics associated for each of at least a subset of a plurality of targets in a wireless communication system (column 5, lines 8-18 – received signal strengths are inherently measured before the mobile are grouped); and

selectively building one or more clusters, each cluster including one or more target(s) and sharing a wireless communication channel, based at least in part on the performance characteristics (column 5, lines 8-18).

Regarding claim 25, Yu further teaches limitations of the claim in column 10, lines 7- 38 and column 15, lines 30-60.

Regarding claim 26, Boscovic further teaches identifying a target within each of the cluster with a lowest SINR in column 5, lines 8-14, and

Yu further teaches dynamically generating a new set of weights based, at least in part, on the SINR of the identified target in column 10, lines 7- 38 and column 15, lines 30-60.

Regarding claim 27, Miya further teaches limitations of the claim in column 7, lines 45-48.

Regarding claim 30, Yu further teaches limitations of the claim in FIG. 11

Allowable Subject Matter

Regarding claims 7, 17, 28, Boscovic and Yu in combination, teaches all subject matter as claimed above, but fails to teach the steps of estimating the performance characteristics of each of the target(s) within each of the cluster(s) using the generated new weight for each of the cluster(s); and regrouping targets according to the weights that provide the best SINR for each of the targets.

7. Claims 7-9, 17-19 and 28-29 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

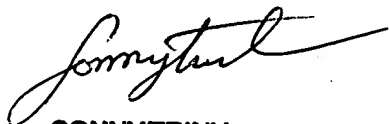
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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai N. Vu whose telephone number is 571-272-7928. The examiner can normally be reached on 9:00AM-7:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SONNY TRINH
PRIMARY EXAMINER

Thai N. Vu
Examiner
Art Unit 2687
